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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/759,666	01/13/2001	Hiroaki Tsugane	15.29/5629	2708

7590

09/03/2002

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EXAMINER

SCHILLINGER, LAURA M

ART UNIT

PAPER NUMBER

2813

DATE MAILED: 09/03/2002

12

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/759,666

Applicant(s)

TSUGANE ET AL.

Examiner

Laura M Schillinger

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 August 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-8 and 15-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 15-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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DETAILED ACTION

Claim Objections

Claim 16 is objected to because of the following informalities: misspelled conducting as “conducting”- appropriate correction is required). Appropriate correction is required.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claims 1-8 and 15-18 are rejected under 35 U.S.C. 102(e) as being anticipated by Huckels et al(‘959).

In reference to claim 1, Huckels teaches a method comprising:

a) simultaneously forming a storage node of the capacitor and lower electrode of the capacitor (Fig.1 (161) and Col.2, lines: 34-40);

b) simultaneously forming a dielectric layer of the cell and element capacitor (Fig.1 (163) and Col.2, lines: 40-45);

c) simultaneously forming a cell plate of the capacitor and upper electrode of the capacitor element (Fig.1 (165) and Col.2, lines: 35-40).

Response to Arguments

Applicant's arguments filed 6/11/02 have been fully considered but they are not persuasive. Applicant argues that that Huckels fails to describe a semiconductor device having a DRAM including a cell capacitor formed in a DRAM region of a substrate and a capacitor element formed in an analog element region of the semiconductor substrate, as recited in claim 1. This argument is not persuasive because the passage the applicant refers to is found within the preamble of the claim and is not patentable subject matter. The applicant failed to include a limitation for forming a DRAM within the limitation body of the claim, thus "referring back to" and thereby incorporating the language of the preamble into the body of the claim. Further, applicant should note that Col.2, Huckels teaches a DRAM cell with a trench capacitor. Consequently, the Examiner's rejection is deemed to be FINAL.

In reference to claim 2, Huckels teaches further comprising: forming a word line and a connection layer between the lower electrode and a separate element (Col.2, lines: 45-65).

In reference to claim 3, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation(Col.3, lines: 64-68),

Wherein the first element is doped more than the second (Col.4, lines: 40-60).

In reference to claim 4, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation(Col.3, lines: 64-68),

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Wherein the first element is doped more than the second (Col.4, lines: 40-60).

In reference to claim 5, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

Wherein the first element has impurity diffusion thus doping more than the second (Col.4, lines: 15-30 and Col.4, lines: 40-60).) [applicant should note that dopants diffuse when exposed to heat- Huckels teaches that a large exposure to heat results in crystals formed from dopant diffusion- however dopants diffuse without the formation of crystals in smaller heat exposure doses -this is inherent in doped layers which are exposed to significant heat].

In reference to claim 6, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

Wherein the first element has impurity diffusion thus doping more than the second (Col.4, lines: 15-30 and Col.4, lines: 40-60).) [applicant should note that dopants diffuse when exposed to heat- Huckels teaches that a large exposure to heat results in crystals formed from dopant diffusion- however dopants diffuse without the formation of crystals in smaller heat exposure doses -this is inherent in doped layers which are exposed to significant heat]..

In reference to claim 7, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

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Wherein the first element has a silicide layer thus less resistance than the second (Col.4, lines: 40-60 and Col.4, lines: 1-20).

In reference to claim 8, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68),

Wherein the first element has a silicide layer thus less resistance than the second (Col.4, lines: 40-60 and Col.4, lines: 1-20).

In reference to claim 15, Huckels teaches a method comprising:

a) simultaneously forming a conductive storage node of the capacitor and a conductive lower electrode of the capacitor (Fig.1 (161) and Col.2, lines: 34-40);

b) simultaneously forming a dielectric layer of the cell and element capacitor (Fig.1 (163) and Col.2, lines: 40-45);

c) simultaneously forming a conductive cell plate of the capacitor and a conductive upper electrode of the capacitor element (Fig.1 (165) and Col.2, lines: 35-40).

Response to Arguments

Applicant's arguments filed 6/11/02 have been fully considered but they are not persuasive. Applicant argues that that Huckels fails to describe a semiconductor device having a DRAM including a cell capacitor formed in a DRAM region of a substrate and a capacitor element formed in an analog element region of the semiconductor substrate, as recited in claim 1. This argument is not persuasive because the passage the applicant refers to is found within the

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preamble of the claim and is not patentable subject matter. The applicant failed to include a limitation for forming a DRAM within the limitation body of the claim, thus “referring back to” and thereby incorporating the language of the preamble into the body of the claim.

Consequently, the Examiner’s rejection is deemed to be FINAL.

In reference to claim 16, Huckels teaches further comprising: forming a word line and a connection layer between the lower electrode and a separate element. (Col.2, lines: 45-65).

In reference to claim 17, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region, wherein the first resistance is lower than the second (Col.4, lines: 40-60).

In reference to claim 18, Huckels teaches further comprising forming a first resistance element and a second resistance element in the analog region by ion implantation (Col.3, lines: 64-68), Wherein the first element is doped more than the second (Col.4, lines: 40-60).

In reference to claim 19, Huckels teaches wherein the etching a portion of the second conducting layer also forms a first resistance element and a second resistance element in the analog element region (Col.4, lines: 40-60).

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In reference to claim 20, Huckels teaches further comprising performing at least one ion implantation of an impurity into part of the second conducting layer prior to the etching a portion of the second conducting layer (Col.3, lines: 64-68 and Fig.2A (215 and 230)).

In reference to claim 21, Huckels teaches wherein a number of ion implantations of impurity in a region where the first resistance element is to be formed is greater than a number of ion-implantations of impurity in a region where the second resistance element is to be formed so that a resistance value of the first resistance element is lower than a resistance value of the second resistance element (Col.4, lines: 50-60).

In reference to claim 22, Huckels teaches wherein, prior to the etching a portion of the second conducting layer, an impurity is diffused in a region where the first resistance element is to be formed so that a resistance value of the first resistance element is lower than a resistance value of the second resistance element (Col.4, lines: 50-60).

In reference to claim 23, wherein prior to etching a portion of the second conducting layer, a silicide layer is formed in a region where the first resistance element is to be formed so that a resistance value of the first resistance element is lower than a resistance value of the second resistance element (Col.2, lines: 50-55).

Conclusion

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THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Laura M Schillinger whose telephone number is (703) 308-6425. The examiner can normally be reached on M-F 7:00 -4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Olik Chaudhuri can be reached on (703) 306-2794. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 308-7722 for regular communications and (703) 308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-1500.

LMS
August 28, 2002


Chandra Chaudhari
Primary Examiner